

CB ELECTRONICS

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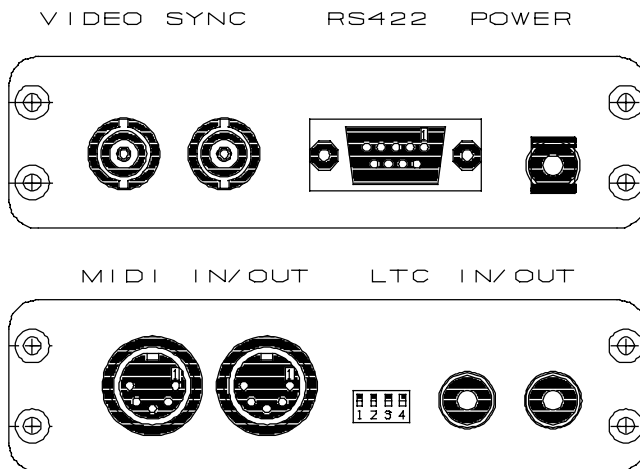
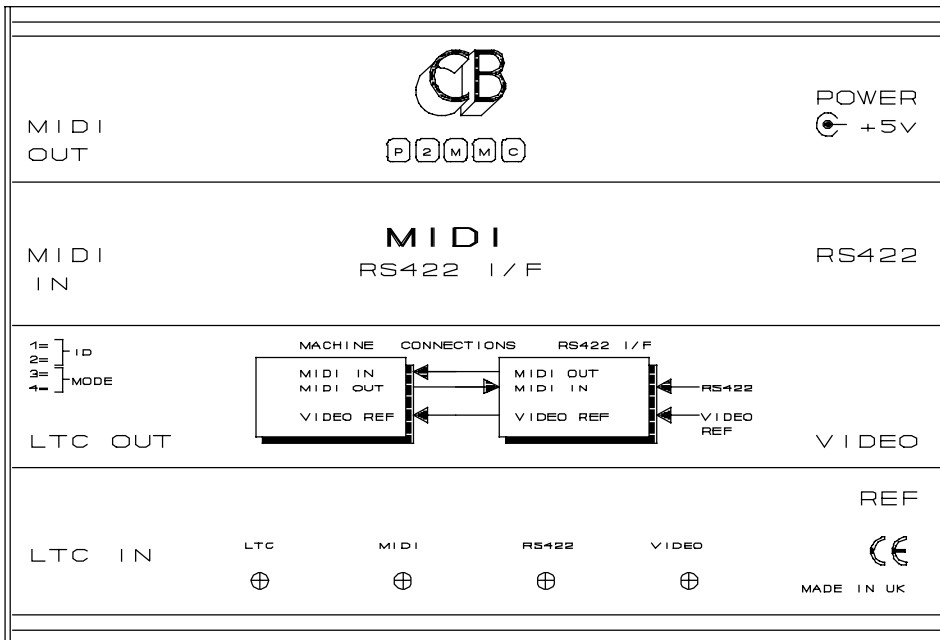
P2MMC RS422-Midi Machine Control Interface

- * Record and Record Track Arming Muti-Track arming passed to MMC Machine (DA88, MX2424..)
- * RS422 Input Sony P2 Protocol Input For use with Consoles, DAW or Video Editors
- * Timecode Output Virtual Master for the MX2424
- * Timecode Input More Accurate position information
- * MIDI, RS22, LTC Reader, Video Indicators Self Test
- * Virtual Machine

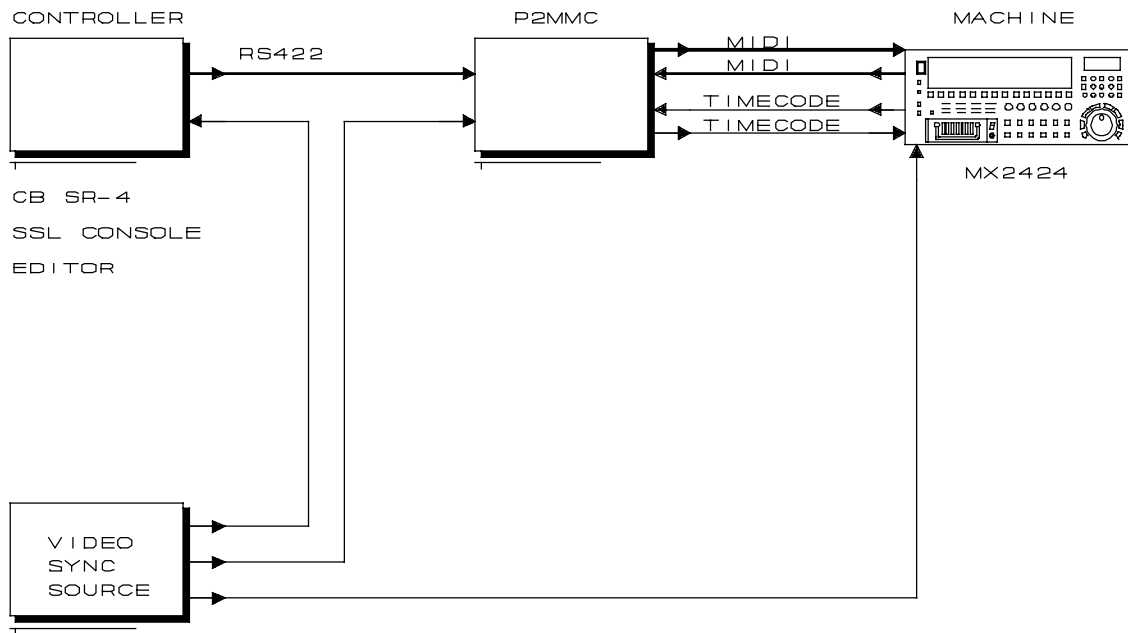
The Tascam P2MMC Interface uses experience gained from both the SR and MR series remote control system. Designed to be used with existing consoles and DAW's and synchronisers the interface will connect any Sony P2 Protocol serial port to the MX2424 Midi Port.

This Interface may be used as a serial slave with most RS422 editors/synchronisers

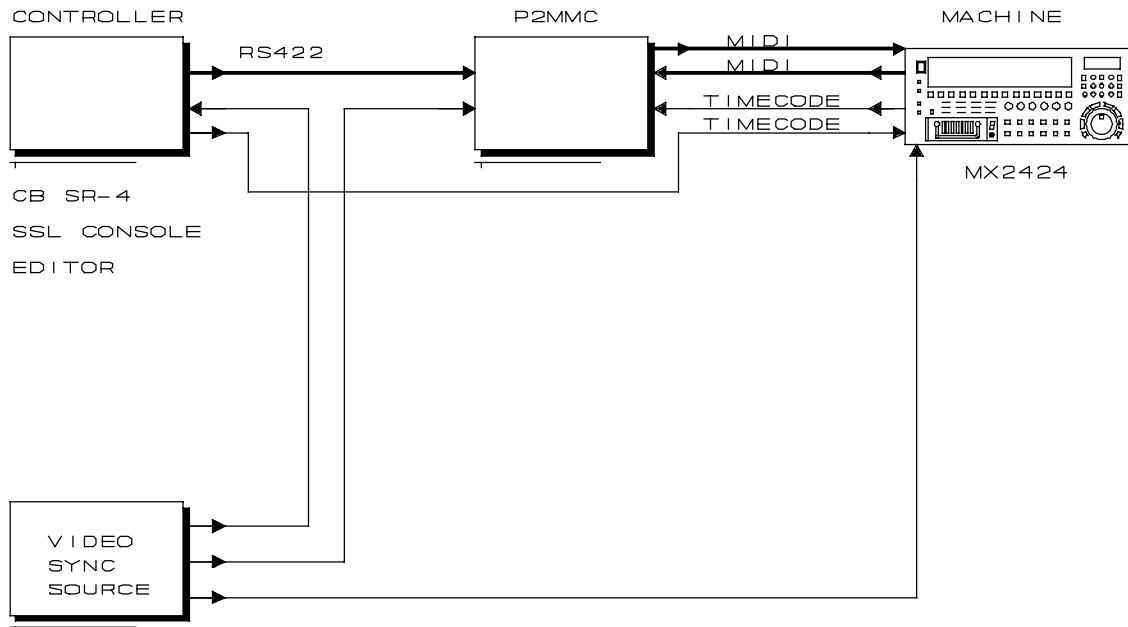
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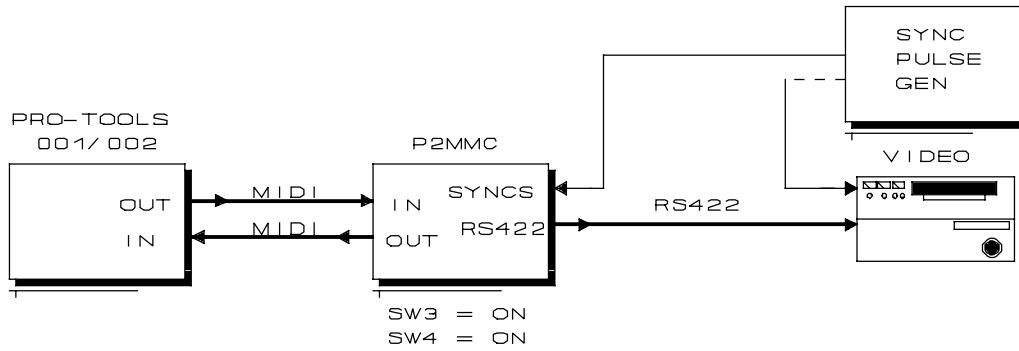
USING THE P2MMC TO SLAVE A MACHINE
IN A SYSTEM WITHOUT MASTER TIMECODE



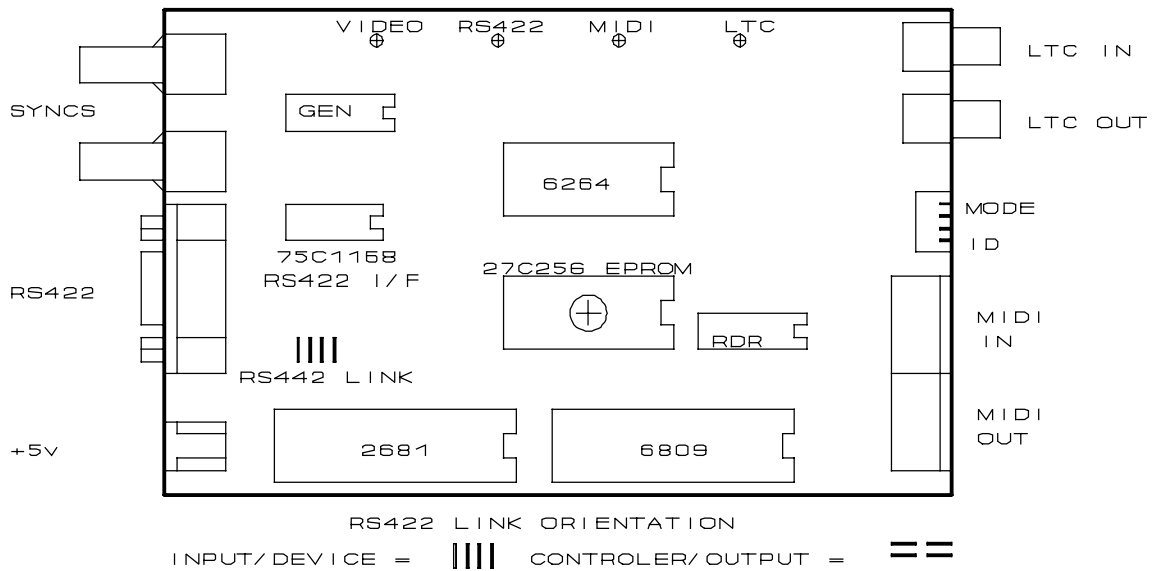
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IN A SYSTEM WITH MASTER TIMECODE



USING P2MMC TO CONNECT
MIDI CONTROLLER AND VIDEO



P2MMC LAYOUT



TXRX Invert

When Using the P2MMC to control a RS422 machine from MIDI (Switches 3&4 ON) either the internal RS422 Links should be set as a Controller/Output or a Tx/Rx Invert cable (T5.04) must be used.

DIP SWITCH SETTINGS

The DIP switch is read regularly by the interface and may be changed at any time.

Dip Switch 3 & 4 Mode								
Sw3	Sw4	Sw1 & Sw2	Mode	LTC Out	LTC In	Midi Out	Midi In	RS422
Off	Off	Device ID	P2 -> MMC	Master Position LTC In or Midi In	Master Position Overrides MTC	MTC Not Used MMC P2 Transport Commands P2 Record Commands Record Tally Requests Transport Tally Requests	MTC Master Position MMC Transport Tallies Record Tallies Full Position	P2 Input Transport Commands: To Midi Record Commands: To Midi Position and Status from Midi In or LTC In Record Tallies from Midi
On	Off	Device ID	LTC -> MTC & LTC -> P2-RS422	Master Position LTC In	Master Position	MTC Master Position - LTC In MMC P2 Record Commands Record Tally Requests	MTC Ignored MMC Record Tallies	P2 Input Transport Commands: Ignored Record Commands: To Midi Position and Status from LTC In Record Tallies from Midi
Off	On	Device ID	Virtual Machine	Master Position Virtual Machine	Ignored	MTC Master Position - VM MMC P2 Record Commands Record Tally Requests	MTC Ignored MMC Commands to VM Record Tallies	P2 Input Transport Commands to Virtual Machine Record Commands to Midi Position and Status from VM Record Tallies from Midi
On	On		MMC -> P2	Master Position LTC In or P2-RS422	Master Position Overrides P2- RS422	MTC Master Position LTC In or P2-RS422 MMC P2 Record Tallies on Request P2 Transport Tallies on Request	MTC Ignored MMC Transport Commands Transport Status Requests Record Status Requests	P2 Output Transport Commands from Midi Record Commands from Midi Position and Status requests to Machine

DIP Switch 1&2 RS-422 Device ID

The RS-422 Device ID tells the controlling device which machine it is controlling. The RS-422 interface can emulate the following devices:-

Switch 1	Switch 2	Emulation	Device ID
Off	Off	Mx2424	0s A0
On	Off	Sony PCM 3324	6s 03
Off	On	Tascam DA-88	Fs 10
On	On	Sony BVU-950	1s 1C

The Timecode standard is included in the Device ID and is set by reading timecode either via the LTC input or Midi Input

LED Indicators

Video

No Video Reference	Flashing (Approx once per second)
Video Reference	Continuous

This LED is also used to indicate that the unit is powered and that the processor is working when the video reference is disconnected

RS422 On when valid Sony P2 RS422 communications are received

MIDI On when valid Midi Messages are Received, for example MTC. You can self check by connecting the input to the Output.

LTC On when valid LTC is read by the Interface.

Version 4 and later software use the LED's to indicate the 4way DIP switch status and software revision number on power up. The sequence is as follows:-

- 1) All LED's ON
- 2) DIP Switch 1..4 On/off Status
- 3) All LED's ON
- 4) Version number Binary bits 4..7 Verison 4 = off off off off
- 5) Version Number Binary bits 0..3 Version 4 = off off on off
- 6) All LED's OFF

Timecode Connections

LTC O/P

In normal operation this will output the current timecode from the machine, when used in systems without a master timecode feed then output is used as the master timecode feed to the machine.

NOTE: The LTC output is only active when video syncs are present.

LTC I/P

When LTC is present at the input this will be used in preference to the Midi timecode from the machine. In General the LTC is more accurate than the MTC.

Synchronisation

Systems with RS-422 Control of the internal synchroniser

Systems using Master Timecode (Chase type 0=Cmd on CB Electronics) send a chase command to the machine and use the machines internal synchroniser to lock the system. The offset is adjusted by sending set offset commands to the machine.

Systems with RS-422 Transport Control only

Editors and earlier SSL Consoles use there internal synchronisers (Chase type 3=-, 4=+, 5=0 on CB Electronics). These request the position from the machine and send varispeed play commands to the machine. Because the MX2424 will not except varispeed play commands correctly the P2MMC changes mode on reception of a Varispeed command and selects the internal Generator as Master. A chase command is sent on the MMC output. The generator is then controlled via the RS422 port and the MX2424(Midi Device) is then chase synchronised to the generator. Any transport command other than Play or Variplay will turn off the chase and be sent directly to the machine.

DIP Switch 3 off leaves the machine in chase at all times for faster lockups are achieved

Faster lockups may be achieved when no offset is required by using a master timecode feed directly to the Machine.

T5.03 RS422 (Sony 9 pin) CABLE			
Function (Controller)	9 pin 'D' Male on cable (Both Ends)	Cable Colour	Function (Controlled Device)
	1		
Rx-	2	Red	Tx-
Tx+	3	Yellow	Rx+
Ground	4	Screen	Ground
	5		
	6		
Rx+	7	Blue	Tx+
Tx-	8	White	Rx-
	9		

T5.04 Tx-Rx Invert Sony 9 pin CABLE			
Function: Controlled Device	9 pin 'D' Male on Cable	9 pin 'D' Male on cable	Cable Colour
	1	1	
Tx-	2	8	Red
Rx+	3	7	Yellow
Ground	4	4	Screen
	5	5	
	6	6	
Tx+	7	3	Blue
Rx-	8	2	White
	9	9	

T5.04A Eavesdrop Sony 9 pin CABLE				
Function: Controller	9 pin 'D' Male on Cable	9 pin 'D' Male on Cable	9 pin 'D' Male on cable	Function: Controlled Device
Rx-	2	2	2	Tx-
Tx+		3	3	Rx+
Ground	4	4	4	Ground
Rx+	7	7	7	Tx+
Tx-		8	8	Rx-

Midi Machine Control Commands and Tallies Currently Implemented

Midi Output (\$7F All Call)		Midi Input	
01	Stop	Midi Timecode 1/4 Frame	
02	Play	Midi Timecode Full Frame	
04	Fast Forward		
05	Fast Rewind		
06	Record On		
07	Record Off		
09	Pause		
0A	Eject		
0B	Chase On		
40 05	Write Offset		
40 4F	Write Record Ready Data	Read Data Response as follows	
42 01	Read Position	01	Selected Timecode
42 03	Read Offset	03	Offset
42 05	Read Lock Deviation	05	Lock Deviation
42 45	Read Timecode Standard	45	Timecode Standard
42 48	Read Motion Tally	48	Motion Control Tally
42 49	Read Velocity Tally	49	Velocity Tally
42 4D	Read Record Status	4D	Record Status
42 4E	Read Record Track Map	4E	Record Track Map
42 4F	Read Ready Track Map	4F	Ready Track Map
44	Locate		
45	Variable Play		
46	Search with Audio (Jog)		
47	Shuttle		
48	Step		